

FIRST: ALGEBRA

Choose the correct answer:

- (1) If $(a+5, 3) = (8, b-1)$ then $\sqrt{a^2 + b^2} = \dots\dots\dots$
 (a) 7 (b) 3 (c) 9 (d) 5
- (2) If $(X^5, Y+1) = (32, \sqrt[3]{27})$, then $X - Y = \dots\dots\dots$
 (a) 0 (b) 4 (c) 2 (d) 5
- (3) If $n(X^2) = 9$, then $n(X) = \dots\dots\dots$
 (a) 3 (b) ± 3 (c) 9 (d) ± 9
- (4) If $n(Y) = 3$ and $n(X \times Y) = 12$, then $n(X^2) = \dots\dots\dots$
 (a) 4 (b) 16 (c) 9 (d) 2
- (5) If $n(X^2) = 9$ and $n(X \times Y) = 6$, then $n(Y^2) = \dots\dots\dots$
 (a) 3 (b) 2 (c) 4 (d) 8
- (6) If $X = \{2\}$ and $Y = \{3\}$, then $X \times Y = \dots\dots\dots$
 (a) 6 (b) $\{6\}$ (c) $(2, 3)$ (d) $\{(2, 3)\}$
- (7) If $X = \{5\}$, then $n(X^2) = \dots\dots\dots$
 (a) 1 (b) 25 (c) 10 (d) 5
- (8) If $X = \{1, 2\}$ and $Y = \{3, 4\}$, then $(3, 4) \in \dots\dots\dots$
 (a) $X \times Y$ (b) $Y \times X$ (c) X^2 (d) Y^2
- (9) If $n(X) = 2$ and $Y = \{1, 2\}$, then $n(X \times Y) = \dots\dots\dots$
 (a) 4 (b) 3 (c) 5 (d) 6

- (10) For any two sets A and B, then the set $\{(x,y): x \in A, y \in B\}$ refers to
- a $n(A \times B)$ b $A \times B$ c $n(B \times A)$ d $B \times A$
- (11) If $X = \{3,4\}$, then $n(X \times \emptyset) = \dots\dots\dots$
- a 0 b 1 c 2 d \emptyset
- (12) If $n(X) = k-2$, $n(Y) = k+2$ and $n(X \times Y) = 5$, then $k = \dots\dots\dots$
- a 3 b -3 c ± 3 d 0
- (13) If $\{2\} \times \{x,y\} = \{(2,4), (2,3)\}$, then $x-y = \dots\dots\dots$
- a 1 b -1 c ± 1 d 0
- (14) If the point $(a,5) \in Y\text{-axis}$, then $a = \dots\dots\dots$
- a 0 b 5 c -5 d 25
- (15) If the point $(5,b-7) \in X\text{-axis}$, then $b = \dots\dots\dots$
- a 2 b 5 c 7 d 12
- (16) If $b < 3$, then the point $(5,b-3)$ lies in the quadrant.
- a first b second c third d fourth
- (17) If (a,b) lies in the third quadrant, then a b zero
- a = b < c > d \leq
- (18) If $(|x|,4) = (3,y^2)$ and (x,y) lies in 2nd quadrant, then $x+y = \dots\dots\dots$
- a 7 b 1 c -1 d -7
- (19) If $(x-2,x-4)$ lies in 4th quadrant, then $x = \dots\dots\dots$
- a 0 b 2 c 3 d 4
- (20) If (k^2-4,k) lies on the negative direction of Y-axis, then $k = \dots\dots\dots$
- a 2 b ± 2 c -2 d 0

(21) If $X \times Y = \{(1,2), (1,3), (1,4)\}$, then $n(X^2) = \dots\dots\dots$

- a 0 b 1 c $\{(1,1)\}$ d 9

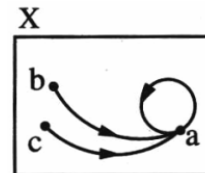
(22) $\{3\} \times [0,2]$ is represented by the figure



(23) If $R = \{(1,3), (2,5), (4,3)\}$ represent a function, then its domain =

- a $\{1,2,4\}$ b $\{3,5,4\}$ c \mathbb{Z} d \mathbb{N}

(24) The opposite figure represent the arrow diagram of a function on X.
The range =



- a $\{a\}$ b $\{a,b\}$ c $\{a,b,c\}$ d $\{b,c\}$

(25) The set of images of each element of the domain of the function is called the

- a domain b codomain c range d rule

(26) If the function $f : X \rightarrow Y$, then the range $\subset \dots\dots\dots$

- a $X \times Y$ b X c Y d $Y \times X$

(27) The function $f(x) = x^5 - 3x^4 + 1$ is of degree.

- a 4th b 9th c 5th d 2nd

(28) The function $f(x) = x(x - x^2)$ is a polynomial of degree.

- a 1st b 2nd c 3rd d 4th

(29) The function $f(x) = x^2 - (x^2 - 3x)$ is a polynomial of degree.

- a 1st b 2nd c 3rd d 4th

- (30) If $a = 0$ and $b \neq 0$, then the polynomial $f(x) = ax^2 + bx + c$ is of degree.
- a 1st b 2nd c 3rd d 4th
- (31) If $f(x) = x^2 - 1$, then $f(1) = \dots\dots\dots$
- a 0 b 2 c -2 d 1
- (32) If $f(x) = x^2 - \sqrt{2}x$, then $f(\sqrt{2}) = \dots\dots\dots$
- a 4 b 2 c 6 d 0
- (33) If $f(x) = kx + 8$ and $f(2) = 0$, then $k = \dots\dots\dots$
- a 8 b 6 c 4 d -4
- (34) If $f(x) = nx^2 + 3x^n - 3$, the set of all possible values of n that makes the function is of 2nd degree is
- a {2,3} b {1,-1} c {0,1,2} d {2,1}
- (35) If $(a,a) \in f$ where $f(x) = 2x + 3$, then $a = \dots\dots\dots$
- a 3 b -3 c 0 d 1
- (36) If $X = \{1,2,3\} \rightarrow f(x) = x^2 - 1$, then $f(4) = \dots\dots\dots$
- a 15 b 17 c 3 d undefined
- (37) If the curve that represents the function $f(x) = x^2 + c$ passes through the point $(0,2)$, then $c = \dots\dots\dots$
- a 3 b 2 c -3 d 1
- (38) The vertex of the curve that represents the function $f(x) = 2x^2 - 4x + 5$ is
- a (1,3) b (3,1) c (-1,3) d (3,-1)
- (39) If $f(x) = 5$, then $f(-3) = \dots\dots\dots$
- a 5 b -5 c -3 d -15

- (40) If $f(x) = 2$, then $f(3) - f(1) = \dots\dots$
 a 0 b $f(2)$ c 2 d 10
- (41) If $f(x) = 4$, then $f(4) \div f(10) = \dots\dots$
 a 4 b $\frac{2}{5}$ c 1 d 10
- (42) If $f(2x) = 4$, then $f(-x) = \dots\dots\dots$
 a -2 b -4 c 4 d 2
- (43) $f(x) = 3x$ is represented by a straight line passes through the point $\dots\dots\dots$
 a (3,3) b (3,0) c (0,0) d (0,3)
- (44) If the straight line that represents the function $f(x) = 2x - a$ passes through the origin, then $a = \dots\dots\dots$
 a -3 b 2 c 0 d 3
- (45) If $(a, 4) \in f$ where $f(x) = 2x + b$, then $6a + 3b = \dots\dots\dots$
 a 12 b 9 c 6 d 3
- (46) If $f(x) = x^2$ and $x \in [-2, 2]$, then $f(x) \in \dots\dots\dots$
 a $[0, 4]$ b $]0, 4[$ c $[0, 1]$ d $[-4, 4]$
- (47) If $(x, 7)$ is located on Y-axis, then $5x + 1 = \dots\dots\dots$
 a 0 b 1 c 5 d 6
- (48) If $(a, 3)$ lies on the straight line that represents $f(x) = 2x - 5$, then $a = \dots\dots\dots$
 a 1 b 2 c -2 d 4
- (49) If $f(x) = 3x + b$ and $f(4) = 13$, then $b = \dots\dots\dots$
 a 1 b 2 c 0 d 3

- (50) If $f(x) = x - 6$ and $\frac{1}{3}f(a) = -2$, then $a = \dots\dots$
 a 1 b 0 c 2 d 6
- (51) The ordered pair (x,y) where $x > 0$ and $y < 0$ is located in the quadrant.
 a 1st b 2nd c 3rd d 4th
- (52) If $2x = 7y$, then $\left(\frac{x}{y}\right)^{-1} = \dots\dots\dots$
 a $\frac{2}{7}$ b $\frac{7}{2}$ c $\frac{49}{4}$ d $\frac{4}{49}$
- (53) If $a,b,2,3$ are proportional, then $\frac{b}{a} = \dots\dots\dots$
 a $\frac{3}{2}$ b $\frac{2}{3}$ c 3 d 2
- (54) If $a,1,b,2$ are proportional, then $\frac{a}{b} = \dots\dots\dots$
 a 3 b $\frac{1}{2}$ c $\frac{1}{3}$ d $\frac{1}{4}$
- (55) If $4x^2 = 9y^2$, then $\frac{x}{y} = \dots\dots\dots$
 a $\frac{9}{4}$ b $\frac{3}{2}$ c $\pm \frac{2}{3}$ d $\pm \frac{3}{2}$
- (56) If $\frac{a+2b}{a-b} = \frac{2}{3}$, then $\frac{b}{a} = \dots\dots\dots$
 a $\frac{1}{8}$ b 8 c $-\frac{1}{8}$ d -8
- (57) If $5a - 4b = 0$, then $\frac{a}{b} = \dots\dots\dots$
 a $\frac{4}{5}$ b $\frac{5}{4}$ c $-\frac{4}{5}$ d $-\frac{5}{4}$

(58) If $\frac{5a - 7b}{8a + 11} = 0$, then $\frac{b}{a} = \dots\dots\dots$

a $\frac{5}{7}$

b $\frac{7}{5}$

c $-\frac{8}{7}$

d 0

(59) If $\frac{4}{x} = \frac{7}{y} = \frac{b}{y - x}$, then b = $\dots\dots\dots$

a 3

b -3

c 11

d -11

(60) If $\frac{a}{3} = \frac{b}{8} = \frac{a + \frac{1}{2}b}{x}$, then x = $\dots\dots\dots$

a 7

b 11

c 9

d 5

(61) If $\frac{a}{b} = \frac{c}{d} = m$ where $m \neq 0$, then $\frac{a \times c}{b \times d} = \dots\dots\dots$

a $2m^2$

b m^2

c m

d 2m

(62) If $\frac{a}{5} = \frac{b}{7}$, then $7a - 5b + 3 = \dots\dots\dots$

a 3

b 7

c 5

d 2

(63) If $\frac{x}{5} = \frac{y}{4} = \frac{x + 2y}{k}$, then k = $\dots\dots\dots$

a 9

b 14

c 13

d 8

(64) If $\frac{a}{4} = \frac{b}{5}$ and $2a + 3b = 46$, then a = $\dots\dots\dots$

a 2

b 4

c 5

d 8

(65) If $\frac{a}{b} = \frac{2}{3}$ and $\frac{a}{c} = \frac{4}{5}$, then b : c = $\dots\dots\dots$

a 3 : 4

b 5 : 6

c 6 : 5

d 4 : 3

(66) The positive middle proportional between a and b is $\dots\dots\dots$

a \sqrt{ab}

b $-\sqrt{ab}$

c $\pm \sqrt{ab}$

d ab

- (67) The third proportional of 9 and -12 is
- a -16 b 8 c 16 d 108
- (68) If 6 is the middle proportional between m and 2, then m =
- a 8 b 12 c 18 d 36
- (69) If $\frac{a}{b} = \frac{b}{c} = \frac{c}{5} = 2$, then a =
- a 5×2^2 b 40 c 10 d 2×5^3
- (70) If $\frac{a}{b} = \frac{b}{c} = \frac{c}{d} = 2$, then $\frac{a}{d} =$
- a 2 b 4 c 8 d 16
- (71) If a, 2, 4, b are in a continued proportional, then a + b =
- a 8 b 1 c 9 d 7
- (72) The middle proportional between (x-2) and (x+2) is
- a $\sqrt{x+2}$ b $\sqrt{x^2-4}$ c x^2-4 d $\pm \sqrt{x^2-4}$
- (73) The number that must be added to the numbers 1, 3, 6 to be in a continued proportional is
- a 1 b 2 c 3 d 4
- (74) If 7, x, $\frac{1}{y}$ are in a continued proportional, then $x^2y =$
- a 7 b 14 c 49 d 1
- (75) If y is the middle proportional between x and z, then $\frac{x}{z} =$
- a $\frac{x^2}{y^2}$ b $\frac{y^2}{z^2}$ c $\frac{z^2}{y^2}$ d $\frac{y^2}{x^2}$
- (76) If $y = \frac{m}{x^2}$ where m is a constant $\neq 0$, then $y \propto$
- a x^2 b x c $\frac{1}{x}$ d $\frac{1}{x^2}$

(77) If $x - 2y = 0$, then $x \propto$

- a** y **b** y^2 **c** $\frac{1}{y}$ **d** $\frac{1}{y^2}$

(78) The relation that represents a direct variation between x and y is

- a** $xy = 5$ **b** $y = x + 2$ **c** $\frac{x}{3} = \frac{4}{y}$ **d** $\frac{x}{5} = \frac{y}{2}$

(79) If y varies inversely as x and $x = \sqrt{3}$ when $y = \frac{2}{\sqrt{3}}$, then the proportion constant =

- a** $\frac{3}{2}$ **b** $\frac{2}{3}$ **c** 2 **d** 6

(80) If $xy^5 = \text{constant}$, then x varies inversely as

- a** $\frac{1}{5}$ **b** y^5 **c** y **d** y^2

(81) If $y \propto \frac{1}{\sqrt{x}}$, then x varies

- a** directly as y^2 **b** inversely as y^2
c inversely as \sqrt{y} **d** inversely as y

(82) If $y = 3x - 6$, then $y \propto$

- a** x **b** $\frac{1}{x}$ **c** $x-2$ **d** $3x-6$

(83) If $\frac{y+3}{y} = \frac{x+2}{x}$, $x \neq 0$, $y \neq 0$, then $y \propto$

- a** x **b** $\frac{1}{x}$ **c** $x+2$ **d** $x+5$

(84) If $y - x = \frac{2}{y} - \frac{2}{x}$, $x \neq y$, then

- a** $y \propto x + 1$ **b** $y \propto x$ **c** $y \propto \frac{1}{x}$ **d** $y \propto \frac{1}{x^2}$

- (85) If $9, 2x, \frac{1}{y^2}$ are proportional, then $x \propto y = \dots\dots\dots$
- (a) $\frac{3}{2}$ (b) $-\frac{3}{2}$ (c) $\pm \frac{3}{2}$ (d) $\pm \frac{2}{3}$
- (86) If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = m$, then $\frac{ace}{bdf} = \dots\dots\dots$
- (a) $3m$ (b) m^2 (c) m^3 (d) m
- (87) If $y \propto x$ and $y = 2$ as $x = 4$, then $y = \dots\dots x$
- (a) 4 (b) 3 (c) 2 (d) $\frac{1}{2}$
- (88) The mean of the values 7, 3, 6, 9, 5 is $\dots\dots\dots$
- (a) 3 (b) 6 (c) 4 (d) 12
- (89) The range of the values 23, 22, 15, 18, 17 is $\dots\dots\dots$
- (a) 8 (b) 18 (c) 19 (d) 23
- (90) If 67 is the greatest value and the range is 27, then the smallest value is $\dots\dots\dots$
- (a) 67 (b) 40 (c) 27 (d) 94
- (91) The most common value of set of individuals is called $\dots\dots\dots$
- (a) median (b) range (c) mode (d) mean
- (92) If the mean of the values $3k-3$, $3k-1$, $2k+1$, $2k+3$, $2k+5$ is 13, then $k = \dots\dots\dots$
- (a) -5 (b) 10 (c) 5 (d) $\frac{1}{5}$
- (93) If the range of values 2, 7, a , 6 is 8 where $a > 0$, then $a = \dots\dots\dots$
- (a) 4 (b) 9 (c) -1 (d) 10
- (94) If $(x - \bar{x})^2 = 28$ for the set 7 values, then $\sigma = \dots\dots\dots$
- (a) 28 (b) 7 (c) 4 (d) 2

(95) If the function $f(x) = (k-3)x^3 + 2x^m + 1$ is of 2nd degree, then $k+m = \dots\dots\dots$

- a** 5 **b** 3 **c** 2 **d** -5

(96) The difference between the greatest value and the smallest value is called

- a** median **b** mean **c** range **d** mode

(97) If the standard deviation for the values 5, $x+2$ and $2y+1$ is zero, then $x + y = \dots\dots\dots$

- a** 10 **b** 5 **c** 15 **d** 0

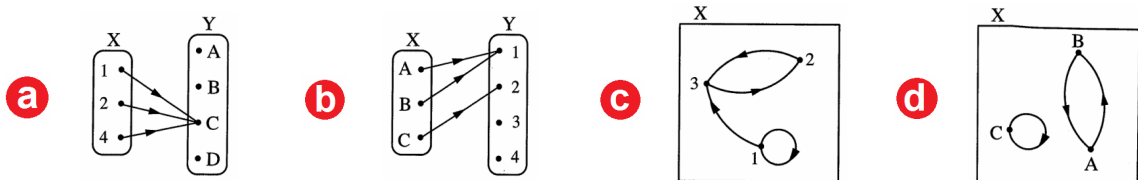
(98) The standard deviation for the values 7, 7, 7 is

- a** 49 **b** 7 **c** 3 **d** 0

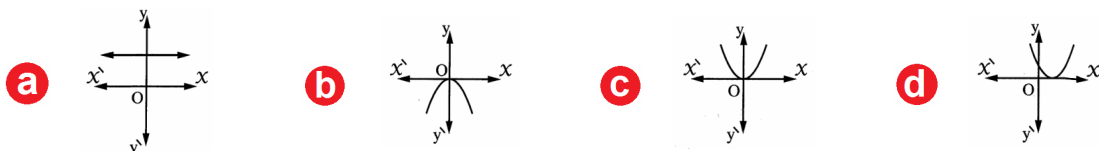
(99) If all individuals are equal, then

- a** $\bar{X}=0$ **b** $\bar{X} = 0$ **c** $\sigma=0$ **d** mode=0

(100) Which of the following arrow diagrams does not represent a function



(101) The graph of the function f where $f(x) = x^2 - 2x + 1$ is the graph number



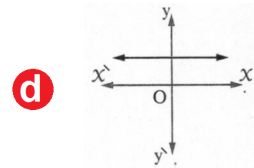
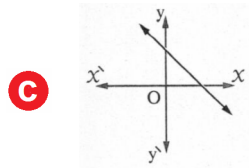
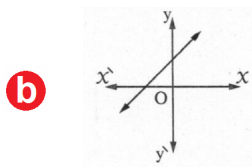
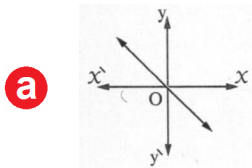
(102) If the curve of the function f where $f(x) = x^2 - a$ passes through the point (1, 0), then $a = \dots\dots\dots$

- a** ± 1 **b** -1 **c** 1 **d** zero

(103) If $f(x) = x^{k+3} + 2k$ is a quadratic function, then $f(2) = \dots\dots$

- a** 1 **b** -1 **c** 2 **d** -2

(104) The graph which represents the direct variation is number



Essay problems:

(1) If $X = \{1, 5, 6\}$ and $Y = \{5\}$ and $Z = \{2, 3\}$, Find:

- (a)** $n(X \times Z)$.
(b) $(Y \cap X) \times (X - Y)$.

(2) If $X \times Y = \{(2, 3), (2, 6), (2, 7)\}$, Find:

- (a)** X and Y .
(b) Y^2 .
(c) $n(X^2)$.

(3) If $X = \{2, 3\}$, $Y = \{3, 4\}$ and $Z = \{4, 5\}$, Find:

- (a)** $Z \times (X \cap Y)$
(b) $(Z - Y) \times X$

(4) If $(x+3, 8) = (5, 2^y)$, then find the value of x and y .

(5) If $(x-2, 9) = (5, x+y)$, find the value of $\sqrt{3x+2y}$.

(6) If $(x^2, |x|) = (4, 3)$ and (x, y) located in the 3rd quadrant, then find $x+y$.

(7) If $X = \{1, 3, 5\}$ and $Y = \{1, 2, 4, 5, 6\}$ and R is a relation from X to Y where aRb means $a+b=7$ for $a \in X$ and $b \in Y$. Write R , represent it by the arrow diagram, show that R is a function and write its range.

- (8) If $X=\{1,3,5\}$ and R is a function on X where $R=\{(a,3), (b,1), (1,5)\}$. Find the value of $a+b$.
- (9) If $f(x)=2x^2-5x+2$, prove that $f(2)=f(\frac{1}{2})$
- (10) If f is a function on X where $X=\{3,4,5,6\}$ and $f(3)=3$, $f(4)=5$, $f(5)=5$, $f(6)=5$. represent f by an arrow diagram, write f and find its range.
- (11) If the straight line which represents the function $f(x)=ax+b$ intersects X -axis at $(3,0)$ and Y -axis at $(0,-3)$, find the value of a and b .
- (12) If $(2a,5a) \in f$ where $f(x)=2x+5$, find the value of a and identify the intersection points of the straight line with the coordinates axes.
- (13) If $f(x)=(3-a)x^2+(b+5)x+4$ is a constant function. Find the value of $a+b$.
- (14) If the vertex of the curve of the function $f(x)=x^2-ax+3$ is $(2,k)$. Find the value of a and k .
- (15) Represent graphically the function $f(x)=4-x^2$, where $x \in [-3,3]$ and from the graph identify:
 (a) The vertex.
 (b) The equation of the axis of symmetry.
 (c) The maximum or minimum value.
- (16) Represent graphically the function $f(x)=x^2+2x+1$, where $x \in [-4,2]$ and from the graph identify:
 (a) The vertex.
 (b) The equation of the axis of symmetry.
 (c) The maximum or minimum value.
- (17) If $\frac{x-2y}{x+3y} = \frac{1}{3}$, find the value $\frac{y}{x}$.

- (18) If $\frac{x}{y} = \frac{2}{3}$, find the value of $\frac{3x + 2y}{6y - x}$.
- (19) Find the number that if added to the two terms of the ratio 7:11 it becomes 2:3
- (20) Find the number must be added to each of the numbers 3,5,8 and 12 to be proportional.
- (21) Find the number if subtract its triple from the two terms of the ratio 49:69 it becomes 2:3.
- (22) Find the number if we added its square to the two terms of the ratio 7:11 it becomes 4:5
- (23) If $\frac{a + b}{b} = \frac{c + d}{d}$, **prove that** a, b, c and d are proportional.
- (24) If $\frac{a}{b - a} = \frac{c}{d - c}$, **prove that** a, b, c and d are proportional.
- (25) If a, b, c and d are proportional, **prove that**:
- (a) $\frac{3a + c}{5a - 2c} = \frac{3b + d}{5b - 2d}$
- (b) $\frac{a^2 + b^2}{ab + cd} = \frac{a}{b}$
- (c) $\frac{ac}{bd} = \left(\frac{a - c}{b - d}\right)^2$.
- (26) If $\frac{x}{3} = \frac{y}{4} = \frac{z}{5}$, **prove that** $\frac{2y - z}{3x - 2y + z} = \frac{1}{2}$.
- (27) If $\frac{a}{2} = \frac{b}{3} = \frac{c}{4} = \frac{2a - b + 5c}{3x}$, **find** the value of x.
- (28) If $\frac{x}{a - b + c} = \frac{y}{b - c + a} = \frac{z}{c - a + b}$, **prove that** $\frac{x + y}{a} = \frac{y + z}{b}$.

(29) If $\frac{x}{2a+b} = \frac{y}{2b-c} = \frac{z}{2c-a}$, prove that

$$\frac{2x+y}{4a+4b-c} = \frac{2x+2y+z}{3a+6b}.$$

(30) If $\frac{a+b}{4} = \frac{b+c}{5} = \frac{c+a}{7}$, prove that $\frac{a+b+c}{8} = \frac{a}{3}$.

(31) If $a, 3, 9, b$ are in a continued proportion, find the value of a and b .

(32) If $\frac{a^2+b^2}{b^2} = \frac{b^2+c^2}{c^2}$, prove that b is a middle proportion between a and c where ac is a positive quantity.

(33) If b is a middle proportion between a and c , prove that:

(a) $\frac{a}{c} = \frac{b^2}{c^2}.$

(b) $\frac{a^2+b^2}{b^2+c^2} = \frac{a}{c}.$

(34) If Y varies directly as X and $Y=20$ as $X=7$, Find the relation between X and Y , then find the value of X as $Y=4$.

(35) If $Y \propto X$ and $Y=14$ as $X=42$, Find:

(a) The relation between Y and X .

(b) The value of Y as $X=60$.

(36) If $Y \propto \frac{1}{x}$ and $Y=3$ as $X=2$, Find:

(a) The relation between Y and X .

(b) The value of Y as $X=1.5$

(37) If $\frac{a+2b}{6} = \frac{b+3c}{3}$, prove that $a \propto b$.

(38) If $x^2y^2 - 6xy + 9 = 0$, prove that $y \propto \frac{1}{x}$.

(39) If $4x^2 + 9y^2 = 12xy$, prove that $y \propto x$.

(40) From the opposite table:

X	2	4	6
Y	6	3	2

(a) Determine the type of variation.

(b) Find the constant of variation.

(c) Find the value of y as $x=3$

(41) If $y=z+5$, $z \propto \frac{1}{x}$ and $y=6$ as $x=2$. Find the relation between x and y , then find the value of y as $x=1$

(42) Calculate the mean and the standard deviation of the following values:

(a) 15, 6, 8, 12, 4.

(b) 5, 6, 7, 8, 9.

(43) Calculate the standard deviation of the following frequency distributions:

(a)

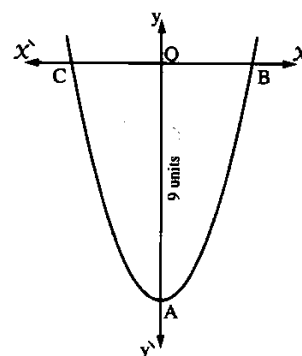
Values	0	1	2	3	4	5
Frequency	9	15	17	25	20	14

(b)

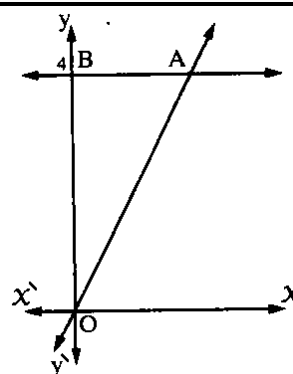
Sets	0-	2-	4-	6-	8-
Frequency	1	5	9	3	2

Drawn problems:

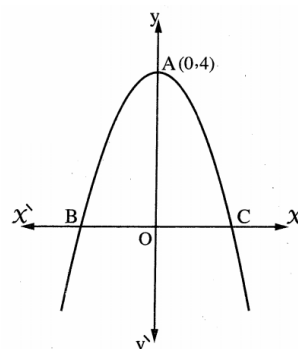
- (1) The opposite figure represents the curve of the function f where $f(x) = x^2 + k$. Find:
- The value of k .
 - The coordinates of B and C .
 - the area of triangle with vertices A, B, C



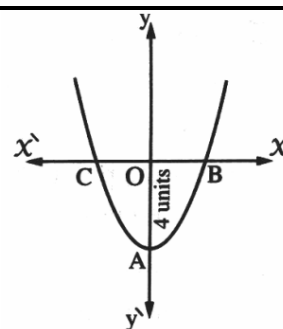
- (2) The \overleftrightarrow{AO} represents a linear function f where $f(x) = nx + k$ and the area of the $\triangle ABO$ is 4 square units. Find the value of n and k .



- (3) The opposite figure represents the curve of the quadratic function f where $f(x) = 4 - kx^2$, if the area of $\triangle ABC$ is 8 square units, Find:



- (4) The opposite figure represents the curve of the function f where $f(x) = x^2 - m$, Find:
- The value of m .
 - The area of $\triangle ABC$.



SECOND: GEOMETRY

Choose the correct answer:

- (1) The straight line whose slope $m_1=2$ intersects a straight line in one point, then the slope $m_2 \neq$
 a 2 b -2 c $\frac{1}{2}$ d $-\frac{1}{2}$
- (2) The area of triangle that bounded by the straight lines: $x = 0$, $y = 0$ and $3x-4y=12$ is square unit
 a 4 b 6 c 12 d 10
- (3) ABCD is a square in which A(1,0) and B(5,-3), then the perimeter of the square is length unit
 a 5 b 10 c 20 d 15
- (4) If C(2,-1) is the midpoint of \overline{AB} , A(2,3), then the coordinates of B is
 a (1,2) b (2,1) c (2,-5) d (-5,2)
- (5) The distance between (0,0) and (3,-4) is length unit.
 a 1 b 5 c -1 d 7
- (6) The equation of the straight line passes through (3,5) and parallel to X-axis is
 a $Y=3$ b $X=3$ c $Y=5$ d $X=5$
- (7) \overline{AB} is a diameter in the circle M, A(-2,3) and B(6,-5), then the coordinates of M is
 a (4,4) b (-2,1) c (2,-1) d (-1,2)

- (8) The straight line whose equation: $3x+4y-9=0$ is perpendicular to the straight line whose slope
- a $\frac{3}{4}$ b $\frac{4}{3}$ c $-\frac{4}{3}$ d $-\frac{3}{4}$
- (9) The distance between the point $(3, -4)$ and the X-axis equals length unit.
- a -3 b 4 c -4 d 3
- (10) The straight line whose slope equals to the additive identity is parallel to the straight line whose equation is
- a $Y=X$ b $Y=1$ c $X=1$ d $Y=-X$
- (11) If the X-axis bisect \overline{AB} where $A(4,2)$ and $B(-2,y)$, then $y=.....$
- a 3 b 2 c -2 d 4
- (12) Two perpendicular straight lines, the slope of the first is $-\frac{1}{4}$ and the slope of the second is $4k$, then $k =$
- a 4 b 1 c -4 d $\frac{1}{4}$
- (13) If the two straight lines: $x+y=5$ and $kx+2y=0$ are parallel, then $k =$
- a -2 b -1 c 1 d 2
- (14) If the straight line whose equation $bx+a=cy$ and passing through the origin, then = 0
- a $b \times c$ b c c b d a
- (15) The straight line whose equation $y=x$ passing through
- a $(-1,0)$ b $(0,0)$ c $(1,0)$ d $(0,-1)$
- (16) The slope of the straight line whose equation $cx+ay=b$ is
- a $-\frac{a}{b}$ b $-\frac{a}{c}$ c $-\frac{b}{c}$ d $-\frac{c}{a}$

(17) If $\frac{5}{4}$ and $\frac{k}{2}$ are two slopes of two perpendicular straight lines, then $k = \dots\dots\dots$

- a $-\frac{5}{8}$ b $\frac{5}{8}$ c $\frac{8}{5}$ d $-\frac{8}{5}$

(18) A circle, its center is the origin point, and its radius length is 3 length units, then the point $\dots\dots\dots$ belongs to the circle.

- a (1,3) b $(-2, \sqrt{5})$ c (3,1) d (2,1)

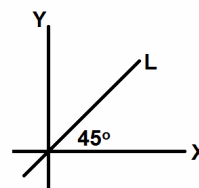
(19) The perpendicular distance between $y=3$ and $y=-2$ is $\dots\dots\dots$

- a 1 b 2 c 3 d 5

(20) If $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ and the slope of $\overleftrightarrow{AB} = -2$, then the slope of \overleftrightarrow{CD} is $\dots\dots\dots$

- a -2 b $-\frac{1}{2}$ c $\frac{1}{2}$ d undefined

(21) The equation of the straight line L is $\dots\dots\dots$



- a $X=1$ b $Y=1$ c $Y=X$ d $Y=-X$

(22) ABCD is a parallelogram, then slope of $\overleftrightarrow{AB} =$ the slope of $\dots\dots\dots$

- a \overleftrightarrow{AD} b \overleftrightarrow{AC} c \overleftrightarrow{BC} d \overleftrightarrow{CD}

(23) The length of the intercepted part of Y-axis by the straight line $3y=4x-12$ equals $\dots\dots\dots$ length unit.

- a 3 b -4 c 4 d 12

(24) The circumference of a circle whose center (0,0) and passing through the point (3,4) is $\dots\dots\dots$ length unit.

- a 5π b 10π c 4π d 6π

(25) The slope of the straight line which makes an angle of measure θ with the positive direction of X-axis is

- a $\sin \theta$ b $\cos \theta$ c $\tan \theta$ d $\sin \theta + \theta$

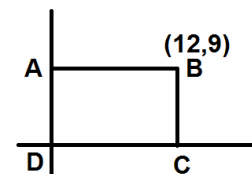
(26) \overline{AB} is a diameter in a circle where $A(-1,5)$ and $B(3,1)$, then the coordinates of the center is

- a $(2,6)$ b $(1,3)$ c $(4,-4)$ d $(-4,4)$

(27) The slope of the straight line that parallel to the Y-axis (perpendicular to X-axis) is

- a 0 b 1 c -1 d undefined

(28) In the opposite figure: ABCD is a rectangle. AD = length unit.



- a 9 b 12 c 13 d 0

(29) If $(0,a)$ belongs to the straight line $3x-4y+12=0$, then $a = \dots$

- a -3 b 4 c 3 d -4

(30) The equation of the straight whose slope is 1 and passing through the origin is

- a $X=1$ b $Y=1$ c $Y=X$ d $Y=-X$

(31) The slope of the straight line which makes an angle of measure 45° with the positive direction of X-axis is

- a 1 b -1 c 0 d 2

(32) If \overleftrightarrow{AB} is parallel to x-axis where $A(8,3)$ and $B(2,k)$, then $k=...$

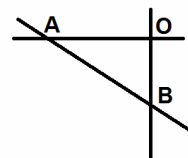
- a 8 b 0 c 3 d 2

(33) If $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$, $A(-1,2)$ and $B(0,0)$, then the slope of \overleftrightarrow{CD} is

- a -2 b $\frac{1}{2}$ c $-\frac{1}{2}$ d 2

- (34) If the distance between $(a,0)$ and $(0,1)$ is 1 length unit, then a =
- a -1 b 0 c 1 d ± 1
- (35) If the slope of the straight line $ax-y+5=0$ is 3, then a =
- a 5 b -5 c 1 d 3
- (36) The straight line passing through $(-1,-1)$ and $(4,4)$ makes an angle with positive direction of X-axis of measure°
- a 30 b 45 c 60 d 135
- (37) The slope of the straight line $2y = \frac{1}{2}(3 - 5x)$ is
- a $-\frac{5}{2}$ b $-\frac{5}{4}$ c $\frac{3}{4}$ d $\frac{3}{2}$
- (38) The straight line $3x+4y=9$ is perpendicular to the straight line whose slope is
- a $\frac{4}{3}$ b $\frac{3}{4}$ c $-\frac{4}{3}$ d $-\frac{3}{4}$
- (39) ABCD is a square and $A(2,-5)$, $B(-1,-1)$, then its perimeter is length unit.
- a 5 b 20 c 7 d 28
- (40) If the slopes of two straight lines are equal, then the two straight lines are
- a perpendicular b parallel
c intersecting d skew
- (41) The length of the Y intercept by the straight line $2x-3y=6$ equals length unit.
- a -6 b -2 c 6 d 2

- (42) The equation of Y-axis is
- a $X=0$ b $Y=0$ c $Y=X$ d $XY=1$
- (43) The points $(-3,0)$, $(0,3)$ and $(3,0)$ are vertices of triangle whose type
- a scalene b isosceles
c obtuse-angled d isosceles and right-angled
- (44) If the slope of a straight line is greater than 0, then the angle with the positive direction of X-axis is
- a obtuse b acute c right d straight
- (45) If the slope of the straight line $y+ax+b=0$ is -3 and passing through $(1,4)$, then $a+b=$
- a 4 b 7 c -4 d -7
- (46) If the slope of the straight line passing through the two points $(k,2k+1)$ and $(k-2,4k-1)$ is 3, then $k =$
- a 2 b -2 c 3 d -3
- (47) If the straight line $y=(a-1)x +5$ is parallel to the straight line that passing the two points $(1,2)$ and $(3,8)$, then $a =$
- a 3 b 4 c -4 d 7
- (48) In the opposite figure: $3 OA = 4 OB$, then the equation of \overleftrightarrow{AB} is



- a $y = -\frac{3}{4}x + 3$ b $y = -\frac{3}{4}x - 3$
c $y = -\frac{4}{3}x + 3$ d $y = -\frac{4}{3}x - 3$

- (49) If the straight line $x - \sqrt{3}y = 2$ makes an angle with the positive direction of x-axis of measure $(2k+20)^\circ$, then $k = \dots\dots$
- a 30 b 20 c 10 d 5
- (50) If $\sin \theta = \cos 2\theta$ where θ is an acute angle, then $\theta = \dots\dots^\circ$
- a 45 b 30 c 60 d 15
- (51) $\frac{\sin \theta}{\cos \theta} = \dots\dots$
- a 1 b $\tan \theta$ c $\sin \theta$ d $\cos \theta$
- (52) ABC is an isosceles triangle and $\tan\left(\frac{A}{2}\right) = 1$, then $\tan B = \dots\dots$
- a 1 b $\frac{1}{2}$ c 2 d 45°
- (53) $\tan \theta \times \cos \theta = \dots\dots$
- a $\cos \theta$ b $\sin \theta$ c 1 d 0
- (54) ABC is a right-angled triangle at B and $AB = \frac{1}{2} AC$, then $\cos A = \dots\dots$
- a $\frac{1}{2}$ b $\frac{\sqrt{3}}{2}$ c $\frac{1}{\sqrt{2}}$ d $\frac{1}{\sqrt{3}}$
- (55) ABC is a triangle where $m(\angle B) = m(\angle A) + m(\angle C)$, then $\tan \frac{B}{2} = \dots\dots$
- a 45 b 1 c $\frac{1}{2}$ d $\frac{\sqrt{3}}{2}$
- (56) $4 \cos 30 \tan 60 = \dots\dots$
- a 3 b $2\sqrt{3}$ c 6 d 12
- (57) If $\cos 2\theta = \frac{1}{2}$ where θ is an acute angle, then $\theta = \dots\dots^\circ$
- a 15 b 30 c 45 d 60

(58) If $\tan \frac{3x}{2} = 1$ where x is an acute angle, then $m(\angle x) = \dots^\circ$

- a 10 b 30 c 45 d 60

(59) If $\cos \frac{x}{2} = \frac{\sqrt{3}}{2}$ where x is an acute angle, then $\sin x = \dots$

- a $\frac{1}{2}$ b $\frac{\sqrt{3}}{2}$ c $\frac{2}{\sqrt{3}}$ d $\frac{1}{\sqrt{3}}$

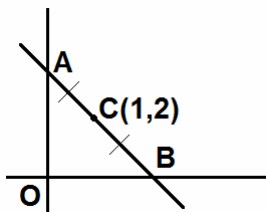
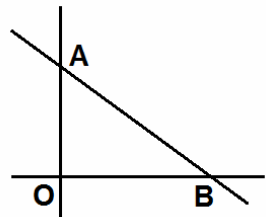
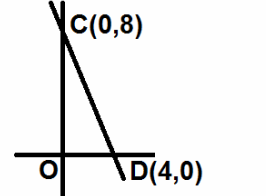
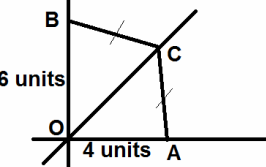
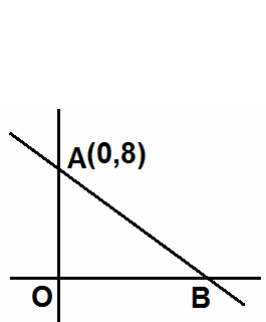
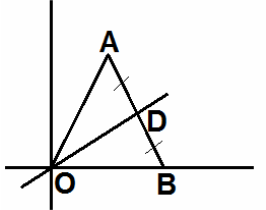
Essay problems:

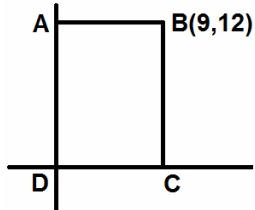
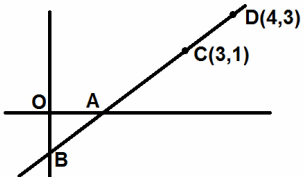
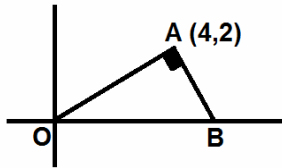
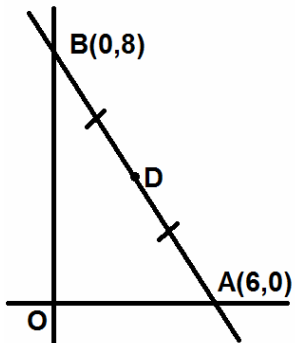
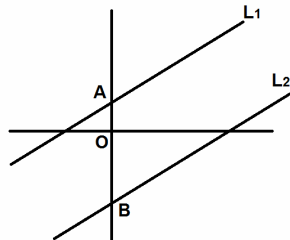
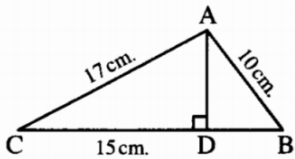
- (1) If $2 \sin x = \sin 30^\circ \cos 60^\circ + \cos 30^\circ \sin 60^\circ$, **find** the value of x .
- (2) ABC is a right angled triangle at B and $2AB = \sqrt{3} AC$, **find** the trigonometrical ratios of $(\angle B)$.
- (3) If the ratio between two supplementary angles is 3:5, **find** the measure of each of them.
- (4) If $\sin (2x+20) = \cos (x+50)$, **find** the value of x .
- (5) ABC is a right-angled triangle at C, $AB=13$ cm, $BC=12$ cm. **Prove that:** $\sin A \cos B + \cos A \sin B = 1$
- (6) Find the equation of a straight line whose slope is 2 and intercepts the positive direction of Y-axis a part of length 7 units.
- (7) Find the equation of a straight line whose slope $-\frac{1}{2}$ and passing through the point (3,5).
- (8) Find the equation of a straight line which passes through the points (2,3) and (-3,2).

- (9) Find the equation of a straight line which passes through the point (3, -5) and parallel to the straight line $x+2y-7=0$
- (10) Find the equation of a straight line which passes through the point (1, 2) and perpendicular to the straight line which passes through the points (3, 2) and (5, -4).
- (11) Find the equation of a straight line whose slope equals the slope of the straight line $\frac{y-1}{x} = \frac{1}{3}$ and intercepts the negative direction of Y-axis a part of length 3 units.
- (12) Find the equation of a straight line which intercepts the two axes two positive parts of length 4 and 9 respectively.
- (13) ABCD is a square in which A(5, 4) and C(-1, 6). Find the equation of \overleftrightarrow{BD} .
- (14) ABCD is a rhombus in which A(1, 3) and C(6, 0). Find the equation of \overleftrightarrow{BD} .
- (15) Find the equation of the straight line which passes through A(2, 3) and B(-1, 3) then prove that $C \in \overleftrightarrow{AB}$ where $C(2k+1, 4k+1)$.
- (16) ABC is a triangle where A(1, 3), B(5, -2), C(3, 4), D is the midpoint of \overline{AB} , $\overleftrightarrow{DE} \parallel \overleftrightarrow{BC}$ intersects \overline{AD} in E. Find:
(a) the length of \overline{DE} . (b) the equation of \overleftrightarrow{DE}
- (17) The opposite table represents a linear relation:
- | | | | |
|------|---|---|---|
| x | 1 | 2 | 3 |
| f(x) | 1 | 3 | a |
- (a) Find the equation of the straight line.
(b) Find the length of y intercept.
(c) Find the value of a.
- (18) If A(-3, 4), B(5, -1) and C(3, 5). Find the equation of the straight line which passes through A and the mid point of \overline{BC} .

- (19) Find the equation of the straight line which passes through the point (3,5) and intercepts a part of the positive direction of X-axis of length 4 units.
- (20) Find the equation of line of symmetry of \overline{XY} where X(3,-2) and Y(-5,6).
- (21) If the distance between (a,5) and (6,1) is $2\sqrt{5}$, **find** the value of a.
- (22) If A(x,3), B(3,2), C(5,1) and AB=BC, **find** the value of x.
- (23) If C(x,-3) is the midpoint of AB where A(-3,y) and B(9,-7), **find** the value of x and y.
- (24) Prove that A(4,3), B(1,1) and C(-5,-3) are collinear.
- (25) If (1,1), (3,5) and (5,a) are collinear, **find** the value of a.
- (26) Prove that the triangle whose vertices are A(5,-5), B(-1,7) and C(15,15) is right-angled at B, then **find** its area.
- (27) Determine the type of $\triangle ABC$ according to the length of its sides where A(-2,4), B(3,1) and C(4,5).
- (28) If A(5,3), B(6,-2), C(1,-1) and D(0,4). Prove that ABCD is a rhombus and **find** its area.
- (29) ABCD is a parallelogram in which A(3,4), B(2,-1), C(-4,-3). **Find** the coordinates of D.
- (30) If A(3,-2), B(-5,0), C(8,-9) and D(0,7) **prove that** ABDC is a parallelogram.

Drawn Problems:

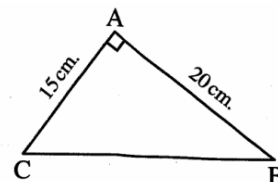
(1)	<p>From the opposite figure, Find:</p> <p>(a) the coordinates of A and B</p> <p>(b) The area of $\triangle AOB$.</p>	
(2)	<p>In the opposite figure, if \overleftrightarrow{AB} intercepts Y-axis in the positive direction a part of 3 units and $AB = 5$ units.</p> <p>Find: the equation of \overleftrightarrow{AB}</p>	
(3)	<p>The equation of \overleftrightarrow{AB} is $CX+Y+D=0$, find the value of C and D.</p>	
(4)	<p>The equation of \overleftrightarrow{OC} is $Y=X$, find the coordinates of C.</p>	
(5)	<p>In the opposite figure, if $\tan(\angle ABO) = \frac{4}{3}$,</p> <p>Find:</p> <p>(a) $m(\angle BAO)$</p> <p>(b) the coordinates of B</p> <p>(c) The slope of \overleftrightarrow{AB}.</p> <p>(d) The equation passes through O and perpendicular to \overleftrightarrow{AB}</p>	
(6)	<p>In the opposite figure, ABO is an equilateral triangle, D is the midpoint of AB, Find:</p> <p>(a) The slope of \overleftrightarrow{AB}.</p> <p>(b) The equation of \overleftrightarrow{OD}.</p> <p>(c) If $(5\sqrt{3}, k) \in \overleftrightarrow{OD}$, find the value of k.</p>	

(7)	ABCD is a rectangle, find length of \overline{AD} .	
(8)	Find the length of each \overline{AD} and \overline{OB}	
(9)	Find: (a) The coordinates of B. (b) The equation of \overleftrightarrow{AB} . (c) $\tan(\angle ABO)$	
(10)	From the opposite figure, Find: (a) The length of \overline{AB} . (b) The coordinates of D. (c) $m(\angle ABO)$. (d) The slope of the perpendicular to \overleftrightarrow{AB} . (e) The equation of the straight line which is parallel to \overleftrightarrow{AB} and passes through the origin. (f) $\sin A \cos B + \cos A \sin B$	
(11)	If $L_1 \parallel L_2$, the equation of L_1 is $y = \frac{2}{3}x + 2$ and $AB = 5$ units. Find the equation of L_2 .	
(12)	In the opposite figure : $\overline{AD} \perp \overline{BC}$, $AC = 17$ cm., $DC = 15$ cm., $AB = 10$ cm. Find the value of : $3 \tan(\angle C) + \sin(\angle B)$	

(13) In the opposite figure :

ABC is a triangle in which : $m(\angle A) = 90^\circ$
 , AC = 15 cm. and AB = 20 cm.

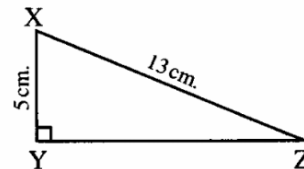
Prove that : $\cos C \cos B - \sin C \sin B = \text{zero}$



(14) In the opposite figure :

XYZ is a triangle , $m(\angle Y) = 90^\circ$
 XY = 5 cm. , XZ = 13 cm.

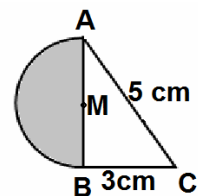
Find: $\sin X \cos Z + \cos X \sin Z$



THIRD: ACCUMULATIVE SKILLS

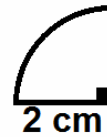
- (1) The sum of measure of accumulative angles at point =°
 a 90 b 180 c 270 d 360
- (2) The sum of measures of interior angles of the pentagon =°
 a 180 b 360 c 540 d 720
- (3) The number of diagonals of the hexagon =
 a 6 b 3 c 12 d 9
- (4) ABC is a triangle in which $m(\angle B) = 3m(\angle A) = 90^\circ$, then $m(\angle C) = \dots^\circ$
 a 30 b 45 c 60 d 90
- (5) ABCD is a parallelogram $m(\angle A) : m(\angle B) = 1 : 3$, then $m(\angle B) = \dots^\circ$
 a 45 b 135 c 120 d 115
- (6) If 3, 7, L are lengths of sides of triangle, then L may =
 a 3 b 4 c 7 d 10
- (7) ABC is an isosceles triangle, the lengths of two sides 3cm and 7cm, then the third side may = cm
 a 3 b 7 c 4 d 10
- (8) ABC is a triangle in which $AB = AC$ and $m(\angle A) = 60^\circ$, then the number of axes of symmetry of this triangle =
 a 1 b 3 c 0 d 2
- (9) The number of axes of symmetry of a circle is
 a 0 b 1 c 4 d infinite

- (10) ABC is a triangle in which $m(\angle B) > m(\angle C)$, then
 a $AC - AB < 0$ b $AC - AB \leq 0$ c $BC \leq AB$ d $AC > AB$
- (11) The base angles of the isosceles triangle are
 a congruent b supplementary
 c equal d complementary
- (12) The angle of measure supplements an angle of measure 120° .
 a 120 b 240 c 60 d 30
- (13) The quadrilateral whose diagonals perpendicular and equal in length is called
 a square b rhombus c circle d rectangle
- (14) The volume of a cuboid whose dimensions $\sqrt{2}, \sqrt{3}, \sqrt{6}$ is cm^3
 a $2\sqrt{6}$ b $3\sqrt{6}$ c $2\sqrt{3}$ d 6
- (15) The measure of exterior angle of an equilateral triangle is ...°
 a 60 b 80 c 100 d 120
- (16) IF $\overline{AB} \equiv \overline{CD}$, then $AB - CD =$
 a 0 b 1 c -1 d 2
- (17) The image of the point $(-3, 7)$ by reflection in Y-axis is
 a $(3, 7)$ b $(-3, -7)$ c $(3, -7)$ d $(-3, 7)$
- (18) From the opposite figure, the area of the shaded part is cm^2



- a 4π b 16π c 2π d 9π

- (19) The opposite figure represents a quarter of a circle of radius length 2cm, then the perimeter of the figure is cm



- a 2π b 5π c $\pi+4$ d $4\pi+4$
- (20) In $\triangle ABC$, if $m(\angle C) = m(\angle A) + m(\angle B)$, then ABC is
- a acute-angled triangle c right-angled triangle
 b isosceles triangle d obtuse-angled triangle
- (21) In any triangle ABC, $AB + BC - AC > \dots\dots\dots$
- a 0 b 1 c AC d otherwise
- (22) The sum of lengths of any two sides in a triangle is the length of the third side.
- a more than b less than c equal to d twice
- (23) The type of the angle of measure 108° is
- a right b obtuse c acute d reflex
- (24) If ABCD is a parallelogram, then $AB + CD = \dots\dots\dots$
- a $2AC$ b $2BC$ c $2BD$ d $2CD$
- (25) If ABCD is a parallelogram and $m(\angle A) + m(\angle C) = 150^\circ$, then $m(\angle B) = \dots\dots\dots^\circ$
- a 75 b 30 c 105 d 100
- (26) Two equal complementary angles, the measure of each of them is $^\circ$
- a 50 b 60 c 45 d 30
- (27) The length of side opposite to the angle of measure 30° in the right angled triangle equals the length of the hypotenuse.
- a 2 b $\frac{1}{2}$ c $\frac{1}{3}$ d $\frac{2}{3}$

- (28) In the $\triangle ABC$, if $AB > AC$, then $m(\angle B) \dots\dots\dots m(\angle C)$.
- a $>$ b $<$ c $=$ d \equiv
- (29) The concurrence point of medians of triangle divides each median in the ratio : from the vertex.
- a 1:1 b 2:3 c 1:2 d 2:1
- (30) The circumference of a circle whose its diameter length 14 cm is cm
- a 7 b 22 c 44 d 14
- (31) The image of $(-4,5)$ by a translation $(2,-3)$ is
- a $(-2,-2)$ b $(2,-2)$ c $(2,2)$ d $(-2,2)$
- (32) ABC is a right-angled triangle at B, $AB = 3\text{cm}$, $BC = 4\text{cm}$, then the area of triangle = cm^2
- a 9 b 6 c 12 d 7
- (33) If the perimeter of a square is 16 cm, then its area = cm^2
- a 64 b 16 c 8 d 4
- (34) The sum of measure of two supplementary angles = $^\circ$
- a 360 b 270 c 180 d 90
- (35) Which of the following are sides of a right-angled triangle?
- a 3,4,6 b 5,12,13 c 6,8,9 d 9,5,14
- (36) The isosceles trapezium has axes of symmetry
- a 1 b 2 c 0 d 3
- (37) The rhombus (rectangle) has axes of symmetry
- a 0 b 1 c 2 d 3
- (38) The square has axes of symmetry
- a 1 b 2 c 3 d 4

FIRST: ALGEBRA

Choose the correct answer:

1.	D	2.	A	3.	A	4.	B
5.	C	6.	D	7.	A	8.	D
9.	A	10.	B	11.	A	12.	A
13.	C	14.	A	15.	C	16.	D
17.	C	18.	C	19.	C	20.	C
21.	B	22.	D	23.	A	24.	A
25.	C	26.	C	27.	C	28.	C
29.	A	30.	A	31.	A	32.	D
33.	D	34.	D	35.	B	36.	D
37.	B	38.	A	39.	A	40.	A
41.	C	42.	C	43.	C	44.	C
45.	A	46.	A	47.	B	48.	D
49.	A	50.	B	51.	D	52.	A
53.	A	54.	A	55.	D	56.	C
57.	A	58.	A	59.	A	60.	A
61.	B	62.	A	63.	C	64.	D
65.	C	66.	C	67.	C	68.	C
69.	B	70.	C	71.	C	72.	D
73.	C	74.	A	75.	B	76.	D
77.	A	78.	D	79.	C	80.	B
81.	B	82.	C	83.	A	84.	C
85.	C	86.	C	87.	D	88.	B
89.	A	90.	B	91.	C	92.	C
93.	D	94.	D	95.	C	96.	C
97.	B	98.	D	99.	C	100.	C
101.	D	102.	C	103.	C	104.	A

SECOND: GEOMETRY

Choose the correct answer:

1.	A	2.	B	3.	C	4.	C
5.	B	6.	C	7.	C	8.	B
9.	B	10.	B	11.	C	12.	B
13.	D	14.	D	15.	B	16.	D
17.	D	18.	B	19.	D	20.	A
21.	C	22.	D	23.	C	24.	B
25.	C	26.	B	27.	D	28.	A
29.	C	30.	C	31.	A	32.	C
33.	B	34.	B	35.	D	36.	B
37.	B	38.	A	39.	B	40.	B
41.	D	42.	A	43.	D	44.	B
45.	C	46.	B	47.	B	48.	B
49.	D	50.	B	51.	B	52.	A
53.	B	54.	A	55.	B	56.	C
57.	B	58.	B	59.	B		

THIRD: ACCUMULATIVE SKILLS

1.	D	2.	C	3.	D	4.	C
5.	B	6.	C	7.	B	8.	B
9.	D	10.	D	11.	A	12.	C
13.	A	14.	D	15.	D	16.	A
17.	A	18.	A	19.	C	20.	C
21.	A	22.	A	23.	B	24.	D
25.	C	26.	C	27.	B	28.	B
29.	D	30.	C	31.	D	32.	B
33.	B	34.	C	35.	B	36.	A
37.	C	38.	D				